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Supreme Court, U.S.

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NO. _____

IN THE
SUPREME COURT OF THE UNITED STATES
OCTOBER TERM, 1988

RAILROAD COMMISSION OF TEXAS,
Petitioner

V.

FEDERAL ENERGY REGULATORY COMMISSION,
Respondent

Appendix To Petition For Writ Of Certiorari
To The United States Court Of Appeals
For The Tenth Circuit

VOLUME 3

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EXHIBIT E

**RAILROAD COMMISSION OF TEXAS
OIL AND GAS DIVISION**

OIL AND GAS DOCKET NO. 10-87,017

**AMENDED FINAL ORDER ADOPTING AND
CLARIFYING RULES AND REGULATIONS FOR
THE PANHANDLE CARSON COUNTY FIELD,
PANHANDLE COLLINGSWORTH COUNTY
FIELD, PANHANDLE POTTER COUNTY FIELD,
PANHANDLE GRAY COUNTY FIELD,
PANHANDLE MOORE COUNTY FIELD,
PANHANDLE WHEELER COUNTY FIELD,
PANHANDLE HUTCHINSON COUNTY FIELD,
PANHANDLE, WEST (SANFORD), PANHANDLE,
WEST (TUBBS), PANHANDLE (OSBORNE
AREA), PANHANDLE, EAST (ALBANY
DOLOMITE, LOWER) FIELDS, PANHANDLE,
WEST FIELD AND PANHANDLE, EAST FIELD,
HEREINAFTER REFERRED TO AS THE
"PANHANDLE FIELDS".**

The Commission finds that, after statutory notice in the above-numbered docket, the presiding examiners have made and filed a proposal for decision containing findings of fact and conclusions of law, which was served on all parties of record; and that this proceeding was duly submitted to the Railroad Commission of Texas at conference held in its offices in Austin, Texas.

It has come to the Commission's attention that confusion exists among some operators in the Panhandle Fields as to the applicability of the rules presently enforced by the Commission in the administration of oil and gas conservation matters in said fields, and more particularly in the methods of

completion permitted in oil wells. So that the existing confusion can be eliminated, the Commission, after review and due consideration of a Proposal For Decision in Docket No. 10-87,017, and the exceptions and replies thereto, hereby adopts the following findings of fact and conclusions of law:

FINDINGS OF FACT

1. The proceedings in this docket were duly initiated pursuant to a notice issued January 9, 1986 by the Railroad Commission of Texas, and all affected operators received notice of the same as required by the Commission's Rules of Practice and Procedure and by the Administrative Procedure and Texas Register Act.

2. All persons seeking to become parties to this proceeding were given the opportunity to file a statement and argue on behalf of their request to be named as a party.

3. The proceedings in this docket and the hearing and record thereof are properly before the Railroad Commission of Texas.

4. A prehearing conference was held in this case on December 18, 1986, and proceedings to present evidence commenced on January 6, 1987.

5. The Railroad Commission called this hearing to review existing rules and consider adopting new or amended rules for the Panhandle Carson Field; Panhandle Collingsworth County Field; Panhandle Potter County Field; Panhandle Gray County Field; Panhandle Hutchinson County Field; Panhandle Moore County Field; Panhandle Wheeler County Field; Panhandle, West (Sanford) Field; Panhandle, West (Tubbs) Field; Panhandle (Osborne Area) Field;

Panhandle, East (Albany Dolomite, Lower) Field; Panhandle, West Field; and Panhandle, East Field in Carson, Collingsworth, Gray, Hutchinson, Moore, Wheeler, Potter, Oldham, Sherman, and Hartley Counties in Texas. These fields collectively are referred to as the Panhandle Fields.

6. The Panhandle Carson County Field; Panhandle Collingsworth County Field; Panhandle Potter County Field; Panhandle Gray County Field; Panhandle Moore County Field; Panhandle (Osborne Area) Field and Panhandle Wheeler County Field are designated by the Commission as oil fields.

The Panhandle, West (Sanford) Field; the Panhandle, West (Tubbs) Field; the Panhandle East (Albany Dolomite, Lower) Field; the Panhandle, West Field; and the Panhandle, East Field are designated by the Commission as gas fields.

7. The Panhandle Oil Field (by various county designations) has been regulated as a separate field under special rules promulgated in orders principally adopted during the 1930's and 1940's. Most of the basic special field rules are set forth in Division Two of Oil and Gas Circular 16-B (October 17, 1933), Special Order Fixing Allowable Production of Sweet and Sour Natural Gas in the Panhandle District of Texas (December 10, 1935), Order No. 20-169 (November 18, 1937), and Order No. 10-3087 (November 13, 1941). (Tr. CIG Exhibit 6, Tab 15, Tab 28, Tab 35, and Tab 53; Stumpf Exhibits 9A and 9B).

The West Panhandle Gas Field and East Panhandle Gas Field have been regulated as separate non-associated gas fields under special rules promulgated in various orders entered from the late 1940's through the early 1950's. (Tr. CIG Exhibit 6,

Tab 28, Oil and Gas Docket No. 108 [December 10, 1935]; Stumpf Exhibits 9A and 9B).

8. The discovery oil well in the Panhandle Field was the Gulf Production Company S.B. Burnett No. 2 well in Carson County. This well was drilled in 1920 and completed in 1921 with an initial pumping potential of 175 barrels per day. (Tr. 286-287; Stumpf Exhibit 4).

The discovery gas well in the Panhandle Field was the Canadian River Gas Company Masterson No. 1 well in Potter County, now known as the Colorado Interstate Gas Company Masterson C-1 well. This well was drilled in 1917 and completed in 1918 with an initial potential of 4.8 million cubic feet of gas. (Tr. 283-285; Stumpf Exhibit 3).

9. In mid-1986 there were approximately 10,796 producing oil wells and 3510 producing gas wells in the fields. Cumulative production to that point was approximately 1.245 billion barrels of oil, 6.4 trillion cubic feet of gas reported as casinghead gas and 31 trillion cubic feet of gas reported as gas well gas. (Johnson Exhibit 11, Johnson Exhibit 5, Tr. 6424, Gillespie Exhibit 10).

10. Remaining productible oil reserves total about 100 million barrels with current primary recovery technology. There is a substantial additional amount of oil in place not commercially producible under current primary recovery technology and economic conditions. (Gillespie Exhibit 5). Remaining gas well gas reserves are approximately 2.8 trillion cubic feet. (Gillespie Exhibit 10).

11. Five separately identifiable geologic rock formations may be encountered in the Panhandle

Fields: The Brown Dolomite, the Moore County Lime, the Arkosic Dolomite, the Granite Wash, and the Granite or Basement (sometimes called Fractured Granite or Weathered Granite). (Tr. 7042-7043, 2268, 4029-4030, 7957.) These formations are sometimes segregated by impermeable shale barriers, but are interconnected and pressure communicated at various points in the field. (Tr. 7964, 7829, 7385, 7389, 7442, 7494, 9076.) (Tr. 9075; CIG Exhibit 6, Tab 28, Oil and Gas Docket No. 108, p. 1 [December 10, 1935], Holmes Exhibit 3.)

12. The Brown Dolomite and in certain regional areas, the Moore County Lime are blanket formations containing potentially productive porosity intervals of 5% or greater extending laterally over wide distances. (Tr. 7064-7065, 7664, 7671, 7677, 7682; Bay Exhibits 72-78.) Panhandle Fields formations lying below the Brown Dolomite and, where present, the Moore County Lime, are more erratic, and porosity distribution within those lower formations tends to be local and discontinuous. (Tr. 7062, 7444-7445, 7549-7551.) In a few parts of the field; the Brown Dolomite and Moore County Lime formations are not present. (Bay Exhibit 11.)

13. Most of the oil development and production from the Panhandle Field comes from the northeastern flank of the field, where there is a heavy concentration of oil wells. There are scattered pockets of oil reserves in the remainder of the field, generally found in structural depressions and traps. (Tr. 7078-7080; Bay Exhibit 11.)

14. The upper zones of the Panhandle Fields generally produce only gas, while oil, if present at any depth, is usually found at or below 250 feet above sea level. (Tr. 8582, 8600, 8658, 9200, 3700, 7386-7388,

Gillespie Exhibits 32 and 33; CIG Exhibit 1, Oil and Gas Docket No. 108, *et al.*, p. 355 [November 19, 1935]; CIG Exhibit 5, Bauer, Oil and Gas Fields of the Texas Panhandle, 10 BULL. OF AM. ASSOC. OF PET. GEOLOGISTS 733, 744 [August 1926]; CIG Exhibit 5, Cotner & Crum, *Geology and Occurrence of Natural Gas in Amarillo District, Texas*, 17 BULL. OF AM. ASSOC. OF PET. GEOLOGISTS 877, 886 [August 1933]; Moore County Royalty Owners Assoc. Cross-Examination Exhibit 4; Rogatz, *Geology of Texas Panhandle Oil and Gas Field*, 23 BULL. OF AM. ASSOC. OF PET. GEOLOGISTS 983, 986 [July 1939]; Hermann Cross-Examination Exhibit 3; Hagy, *History of Development of General Geology of the Panhandle Field of Texas*. 12 PANHANDLE-PLAINS HISTORICAL REVIEW, P.7 [1939].)

15. Operators can generally use information from drillers' logs, producing characteristics of surrounding wells, selective tests of isolated intervals within the wellbore, wireline logs, core analyses, and geological samples, in addition to reference to structure and stratigraphy, in an attempt to determine the gas-oil contact in an individual oil well; but the contact cannot always be determined, and can vary substantially across the field. (Tr. 1120, 2322, 2939, 3171, 3660-3661, 4115-4116, 2939, 2218, 2324, 2460, 4021, 5046, 9104, 9106, 197, 8549-8550, 4115, 1129, 7920-7921, 3828, 2445, 2457, 4115-4116, 4130, 1182, 9091, 2322, 2622.)

16. Operators can avoid perforation of oil wells at horizons which produce only gas and can thereby maintain a low gas-oil ratio and/or low casinghead gas rate. (Tr. 5987, lines 1-8; 0008, line 21, line 6; 9070, lines 1-12; 8853; 6953, lines 9-14; Gillespie Exhibit 66; CIG Exhibit 1, Oil and Gas Docket No. 10-1322, pp. 175-176 [March 20, 1940].)

17. It is not physically necessary to perforate oil wells in upper gas-only intervals in order to recover deeper oil. (Tr. 8989-8990, 3425, 8737, 8868-8869; Gillespie Exhibit 54A.)

18. Production of gas from above oil in immediate proximity in an oil well dissipates reservoir energy thereby reducing ultimate recovery of oil and causing waste. (Tr. 8433, lines 15-20; 3695, lines 9-22; 9079, lines 11-15; 6377, line 21 - p. 6378, line 5; Strickland Exhibit 18; CIG Exhibit 1, Oil and Gas Docket No. 108, *et al.*, pp. 115-116 [July 18, 1935]; Oil and Gas Docket No. 108, *et al.*, p. 140 [November 19, 1935]; Gillespie Exhibit 50, *Texas Panhandle Fields: A Study of Gas Wastage and the Feasibility of Returning Waste Gas to Reservoir*, p. 19 [August 1934]; CIG Exhibit 6, Tab 28, Oil and Gas Docket No. 108, pp. 4-5 [December 10, 1935]; CIG Exhibit 6, Tab 75, Oil and Gas Docket No. 10-36,290 [September 16, 1957].)

19. West and East Panhandle Field gas wells generally produce from higher gas-only intervals separated in some areas by shale barriers from any oil-productive intervals at the sites of the gas wells and/or are completed at some lateral distance from any oil-bearing porosity interval, and therefore for the most part do not withdraw reservoir energy necessary for production of oil. (Tr. 8958; 6986, lines 14-19; 8426-8431; Strickland Exhibits 17 and 18.)

20. Production of unnecessary upper gas interval gas through Panhandle Field oil wells drains reserves which properly lie within the assigned proration units of West and East Panhandle gas wells. (Tr. 8775, 8778-8779, 8788, lines 14-17, 6995, lines 10-21; Gillespie Exhibits 51, 56, 58-63c.)

21. Completion of oil wells below the dry gas interval in the oil-productive portion of the Panhandle Fields reservoir(s) causes oil wells and gas wells to drain different underground pore space and minimizes competition for the same hydrocarbons on overlapping oil and gas surface proration units. (Tr. 6908, lines 3-10.)

More than 15,000 oil wells and gas wells have been drilled and are now producing under the Railroad Commission's regulatory system of assigning the same surface acreage to both oil wells and gas wells. (Tr. 2878, lines 9-18; 6908, lines 3-10.)

22. The Commission has zoned the Panhandle Field reservoir(s) into separate gas fields and oil fields. Commission field rules require that an oil well be perforated only in levels, sands, or strata productive of oil. (Commission Docket 108 Orders, December 30, 1932, and December 10, 1935, CIG Exhibit 1).

23. In 1956, all operators in the field were notified by the Commission that perforation of an oil well "in the dry gas zone" was "definitely in violation" of Railroad Commission rules. (Murray Cross-examination Exhibit 1).

24. Tex. Nat. Res. Code § 86.097 states:

"No person in possession of or operating an oil well may produce from the oil well gas found in a horizon productive gas only."

This statute was enacted by the Legislature as a part of H.B. 266 on May 1, 1935, in specific response to abusive practices in the Panhandle Fields. (Act of May 1, 1935, ch. 120, 1935, Tex. Gen. and Spec. Laws 318; Commission Docket 108 order, December 10, 1935, CIG Exhibit 1.)

25. Gas well gas produced from the Panhandle Fields generally contains an insufficient amount of entrained liquid to justify installation of separating devices. (Tr. 6063, line 12 - 6064, line 4; 4932; Slover Cross-Examination Exhibit 1.)

26. In most instances, West Panhandle Field gas wells effectively and efficiently drain 640-acre proration units. In some instances, replacement gas wells initial potential at unexpectedly high pressures indicating inefficient drainage by the previous gas well on the same section. (Tr. 8519, line 12 - 8520, line 2; 6180, lines 9-12; 6778, lines 13-16; Gillespie Exhibits 11A-11E, 12, 13, 13A, Gillespie cross-examination exhibits 5-23.)

27. A daily casinghead gas limit for a 20 acre unit of 120 mcf per well as proposed in the hearing notice is calculated by multiplication of the statewide 2000:1 figure against the top field allowable of 60 barrels of oil per day. 95% of all oil wells in the field report daily casinghead gas capacity below 120 mcf, without benefit of lease averaging. (Tr. 8810).

27a. Oil wells drilled within the two years preceding this hearing would be entitled to produce 500 mcf of casinghead gas per day under the rules existing at the time such wells were drilled.

28. New drilling for oil between 1978 and 1985 arrested a 20 year decline curve and resulted in the additional recovery of at least 20 million barrels of oil which probably would not have been recovered otherwise. Production reported as casinghead gas approximately doubled during this interval. (Johnston Exhibits 2 and 10, Tr. 5129).

29. Some 27% of the production reported as casinghead gas in the field is coming from former LTX wells. 71.1% of all production reported as casinghead gas is being produced from some 14.4% of the oil wells in the field. (Tr. 5318, 8853).

30. Some oil well operators are maximizing gas production for economic reasons by perforating up into gas only horizons. (Tr. 1196, 3105, 3107, 3638, 3904).

31. Since the enactment of comprehensive field rules in 1935, technological advances have radically changed wellbore completion techniques and analytical methodology. (Tr. 3917-3919, CIG Exhibit 1, May 11, 1936, p. 259; Gillespie Exhibit 27, Bay Cross-examination Exhibits 6, 20 and 25, Podzemny Exhibit 1).

32. The casinghead gas production rate for new oil wells declines rapidly after initial potential, for which the 84th percentile (one standard deviation) equals 237 mcf/day. Tutt exhibit 8, Tutt rebuttal exhibit 4, Tr. 2592-2593, 3905, 5222, 5439)

33. The existing oil allocation formula which provides for a 75% well factor and 25% acreage factor is archaic and does not conform with modern Commission practice, which has moved toward acreage-oriented determination of allowables.

34. Some portions of the producing formation are lenticular or irregular such that closely spaced oil wells may encounter marked variation in initial oil potentials. (Tr. 2811-2812, 6738, 8438 lines 19-24, 8541 lines 10-13, Johnson exhibit 17)

35. Oil exploration in the traditional dry gas area of the field will be encouraged by flexibility in proration unit size requirements. (Tr. 552, 567, 759)

36. Increasing numbers of gas wells are approaching vacuum operational conditions as reservoir pressure declines. Calculated absolute open flow potentials in extremely low pressure reservoirs are not reliable and do not reflect the true productive capability of a gas well, which is more reliably verified through use of G-10 deliverability measurements. (Tr. 2167, 3861, 16 Tex. Adm. Code §3.28 and 3.31)

37. The hearing notice proposed changes in the gas well allocation formula, and no operator presented evidence in support of a formula based upon well potential.

CONCLUSIONS OF LAW

1. All action has been taken and all prerequisites fulfilled to invest the Railroad Commission with jurisdiction to decide this matter.

2. Sections 85.201, 85.202(b) and 86.081(a) of the Texas Natural Resources Code charge the Commission with the duty to regulate production of oil and gas in order to prevent waste and protect correlative rights.

3. When faced with a conflict between its mandates of preventing waste and protecting correlative rights, the Commission is required to balance all competing considerations in resolution of the matter. The prevention of waste is to be weighed heavily in this balancing process as it is the primary goal of the Commission.

Gulf Land Co. v. Atlantic Refining Co., 131 S.W.2d 73 (Tex. 1939).

Hawkins et al. v. Texas Co., 209 S.W.2d 338 (Tex. 1948)

Phillips Petroleum Company et. al. v. American Trading and Production Corporation et. al., 361 S.W.2d 942 (Tex. Civ. App. - El Paso 1962, writ ref'd n.r.e.)

Railroad Commission v. Manziel, 361 S.W.2d 560 (Tex. 1962)

Texaco, Inc. v. Railroad Commission, 583 S.W.2d 307 (Tex. 1979)

Railroad Commission of Texas v. Fain, 161 S.W.2d 498 (Tex. Civ. App - Austin 1942, writ ref'd w.o.m.)

Marrs v. Railroad Commission, 177 S.W.2d 941 (Tex. 1944)

4. Section 86.095 of the Texas Natural Resources Code authorized the Commission to zone the Panhandle Field reservoir(s) into two separate fields, to which the same tract of surface acreage may be assigned. Such dual assignment of acreage should be continued in order to prevent widespread disruption of correlative rights.

5. Section 86.097 of the Texas Natural Resources Code prohibits the completion and perforation of Panhandle oil wells at horizons which are productive only of gas.

6. Section 86.012(a)(11) of the Texas Natural Resources Code defines waste to include "the production of natural gas from a well producing oil from a stratum other than that in which the oil is found" unless produced in a separate string of casing. TEX. NAT. RES. CODE ANN. -§ 86.012(a)(11)(Vernon Supp. 1986).

7. "Casinghead gas" is defined at Section 86.002(10) of the Texas Natural Resources Code as "any gas or vapor indigenous to an oil stratum and produced from the stratum of oil." TEX. NAT. RES. CODE ANN. § 86.002(10)(Vernon Supp. 1987).

8. The Railroad Commission must follow and enforce the provision of the Texas Natural Resources Code. *State v. Jackson*, 376 S.W.2d 341, 344-345 (Tex.

1964); TEX. REV. CIV. STAT. ANN. art. 6252-13a §19(e)(1) (Vernon Supp. 1987).

9. Appendix 1 to the Final Order is a guideline which establishes a rebuttal presumption that a qualified well is properly completed.

10. Changes and clarifications of rules in the Panhandle Fields are appropriate in light of "changed conditions". *Railroad Commission v. Aluminum Company of America*, 380 S.W.2d 599 (Tex. 1964).

11. Adoption of the proposed order is a conservation measure that is necessary to prevent waste and to protect correlative rights in the subject fields.

Therefore, IT IS ORDERED by the Railroad Commission of Texas that the historic classification and separation of Panhandle oil and Panhandle gas fields shall be retained; and that the following fields shall be consolidated:

Panhandle East (Albany Dolomite, Lower) into Panhandle, West

Panhandle, West (Sanford) into Panhandle, West

Panhandle, West (Tubbs) into Panhandle, West (Red Cave)

Panhandle (Osborne Area) into Panhandle Wheeler County;

that various obsolete docket 108 and other orders as listed below be rescinded; and that the following rules, in addition to such of the Commission's general rules and regulations as are not in conflict herewith, be and the same are hereby clarified and adopted to govern the drilling, completion and operation of wells in the Panhandle Fields:

Oil Field Rules

Rule 1. Panhandle Field oil wells are restricted to completion in horizons bearing producible oil, production from said horizons to be capable of passing a gas-oil ratio cut-off of 100,000:1 on 72 hour test of the isolated 50 foot interval below the top of perforations if no other Appendix One oil guideline is met. No person in possession of or operating an oil well may produce from the oil well gas found in a horizon productive of gas only.

Rule 2. No oil well shall hereafter be drilled nearer than FOUR HUNDRED AND SIXTY SEVEN (467) feet to any well completed in or drilling to the same reservoir on the same lease, unitized tract, or farm; and no well shall be drilled nearer than THREE HUNDRED AND THIRTY (330) feet to any property line, lease line, or subdivision line; provided, however, that the Commission will, in order to prevent waste or to prevent the confiscation of property, grant exceptions to permit drilling within shorter distances than herein prescribed, whenever the Commission shall have determined that such exceptions are necessary either to prevent waste or to prevent the confiscation of property. When exception to this rule is desired, application therefor shall be filed and will be acted upon in accordance with the provisions of Commission Statewide Rules 37 and 38, which applicable provisions are incorporated herein by reference.

The aforementioned distances in the above rule are minimum distances to allow an operator flexibility in locating a well; and the above spacing rule and the other rules to follow are for the purpose of permitting only one well to each proration unit.

In applying this rule, the general order of the Commission with relation to the subdivision of property shall be observed.

Rule 3. The acreage assigned to the individual oil well for the purpose of allocating allowable oil production thereto shall be known as the prescribed proration unit. No proration unit shall consist of more than TWENTY (20) acres except as hereinafter provided, and the two farthestmost points in any proration unit shall not be in excess of ONE THOUSAND FIVE HUNDRED (1500) feet removed from each other, provided, however, that in the case of long and narrow leases or in cases where because of the shape of the lease such is necessary to permit the utilization of tolerance acreage, the Commission may, after proper showing, grant exceptions to the limitations as to the shape of the proration units as herein contained. All proration units, however, shall consist of continuous and contiguous acreage which can reasonably be considered to be productive of oil.

If after the drilling of the last well on any lease and the assignment of acreage to each well thereon in accordance with the regulations of the Commission there remains an additional unassigned lease acreage of less than TWENTY (20) acres, then and in such event the remaining unassigned lease acreage up to and including a total of FIVE (5) acres may be assigned to the last well drilled on such lease, or may be distributed among any group of wells located thereon, so long as the proration units resulting from the inclusion of such additional acreage meets the limitations prescribed by the Commission.

An operator, at his option, shall be permitted to form fractional units of TEN (10) acres, with a proportional acreage allowable credit for a well on such unit, with the two farther most points of such TEN (10) acre

fractional unit not greater than ONE THOUSAND ONE HUNDRED (1100) feet removed from each other.

Upon the presentation of engineering and/or geological evidence by an operator to the Commission may approve the drilling of a second well on an existing 10 acre oil proration unit where the evidence proves that an additional well is necessary to properly drain that existing unit.

An operator at his option, shall be permitted to form units of FORTY (40) acres, with a proportional acreage allowable credit for a well on such unit, with the two farthestmost points of such (40) acre unit not greater than TWO THOUSAND ONE HUNDRED (2100) feet removed from each other.

Operators shall file with the Commission certified plats of their properties in said field, which plats shall set out distinctly all of those things pertinent to the determination of the acreage credit claimed for each well unless such filing has already been made; provided that if the acreage assigned to any proration unit has been pooled, the operator shall furnish the Commission with such proof as it may require as evidence that interests in and under such proration unit have been so pooled.

Rule 4. The top allowable for oil wells on a 20 acre unit is set to be 60 barrels of oil per day (BOPD). The maximum daily oil allowable for each well shall be based 75% on acreage and 25% per well and will be equal to the summation of Seventy-five percent (75%) of top allowable multiplied by the ratio the number of acres assigned to the well bears to twenty (20) acres plus twenty-five percent (25%) of top allowable; thus, each well assigned twenty (20) acres will have a 60 BOPD allowable, each well assigned ten (10) acres will have a 38 BOPD allowable, and each well assigned

forty (40) acres will have a 80 BOPD allowable, with the allocation formula not being applicable to the alternate 40 acre units. In addition to the 20 acre base allowable of 60 BOPD, units between 20 and 40 acres which are not assigned tolerance acreage in accordance with Oil Rule 3 will be assigned an incremental allowable proportionate to their acreage at the rate of 1 barrel per acre per day.

Rule 5. An oil well shall be allowed to produce a daily maximum of 120 mcf of casinghead gas when assigned 20 acres, 76 mcf of casinghead gas when assigned 10 acres, and 160 mcf of casinghead gas when assigned 40 acres. Any wellbore which began commercial production within two years of the date of this order, or which is drilled and completed after the effective date of this order, or which is drilled and completed after the effective date of this order, shall be allowed to produce double such daily maximum for two years from the date of gas pipeline connection. Such additional incentive allowable shall not apply to workover of reentry of existing wellbores.

Rule 6. For W-10 testing and reporting purposes, individual oil wells shall be tested annually on a schedule beginning in April and concluding in August. Where the lease gas-oil ratio for the preceding 12 months exceeds 5000 cubic feet of gas per barrel of oil, individual well tests are required. Lease tests are permissible where the lease gas-oil ratio for the preceding 12 months is at or below 5000 cubic feet of gas per barrel of oil. Operators shall coordinate their test periods and procedures with the District 10 office.

In the event a lease test shows gas-oil ratio between 5,000 cubic feet of gas per barrel of oil and 30,000 cubic feet of gas per barrel of oil, and each well on such lease has been tested within the previous three calendar years and qualifies as an oil well, then such individual

well tests shall not be required annually if the lease wide gas-oil ratio has not increased from the year in which individual well tests were performed. In the event new wells have been added during such three year period, and initial tests on such new well shows a GOR below 30,000:1, individual annual well tests shall not be required.

Gas Field Rules

Rule 1. The division and boundary line between the Panhandle, East and Panhandle, West gas fields as set forth in docket 10-23,955 is retained; the West field being bounded on the east by a line traversed by the following set out course; to wit:

"Beginning at a point in Gray County, Texas, represented by the southeast corner of Section 9, Block 3, I&GN Survey; thence south along the east lines of Sections 10 and 11 in the same Block and Survey to a point represented by the southeast corner of Section 11; thence west along the south line of said Section 11 to a point represented by the southeast corner of Section 14 in the same block and survey; thence south along the east line of Section 13 in the same block and survey; thence west to the northeast corner of Section 30, located in Block B-2, H&GN survey; thence south along the east lines of Sections 30, 29, 28, and 27, located in said Block B-2 H&GN Survey, to a point represented by the southeast corner of said Section 27; thence east along the south line of Section 4, Block B-2 H&GN Survey, to the southeast corner of said Section 4, thence south along the east lines of Sections 5, 6, 7, 8, 9, and 10 located in said Block B-2 H&GN Survey, to a point represented by the southeast corner of said Section 10; thence east along the north line of Section 12, Block B-2 H&GN Survey to the northeast corner of said Section 12; thence south along the east lines of said Section 12 to the southeast corner of said Section

12, continuing south along the west lines of Section 2 and 1 of the C&M Survey to a point represented by the southwest corner of said Section 1, C&N Survey; thence east along the south line of said Section 1, C&N Survey, continuing east along the south line of Section 3 of the J.J. Purdick survey to the southeast corner of said Section 3; thence south along the west line of Section 5, Block 2, of the H&GN Survey to the southwest corner of said Section 5; thence east along the south line of said Section 5 and Section 4 of the same block and survey to the southeast corner of said Section 4; thence north to a point represented by the southwest corner of Section 2 of the same block and survey; thence east along the south lines of said Section 2, and Sections 20, 19, 18, 17, 16, 15, and 14 of Block 30, H&GN Survey, and Sections 118, 119, and 120 of Block 23, H&GN Survey to a point represented by the southeast corner of said Section 120; thence south along the east lines of Sections 115, 94, 89, 68, 63, 42, and 37, Block 23, H&GN Survey, to the extremities of production; the sections, blocks, and surveys herein referred to all being located in Gray County, Texas.

Rule 2. No gas well in the Panhandle, West field shall hereafter be drilled nearer than SIX HUNDRED SIXTY (660) feet to an well completed in or drilled to the same reservoir on the same lease, unitized tract or farm, and no well shall be drilled nearer than THREE HUNDRED THIRTY (330) feet to any property line, lease line or subdivision line; No gas well in the Panhandle, East field shall hereafter be drilled nearer than SIX HUNDRED SIXTY (660) feet to an well completed in or drilled to the same reservoir on the same lease, unitized tract or farm, and no well shall be drilled nearer than THREE HUNDRED THIRTY (330) feet to any property line, lease line, or subdivision line;

Provided, however, that the Commission will, in order to prevent waste or to prevent the confiscation of

property, grant exceptions to permit drilling within shorter distances than herein prescribed, whenever the Commission shall have determined that such exceptions are necessary either to prevent waste or to prevent the confiscation of property. When exception to this rule is desired, application therefor shall be filed and will be acted upon in accordance with the provisions of Commission Statewide Rules 37 and 38, which applicable provisions are incorporated herein by reference.

The aforementioned distances in the above rule are minimum distances to allow an operator flexibility in locating a well' and the above spacing rule and the other rules to follow are for the purpose of permitting only one well to each proration unit.

In applying this rule, the general order of the Commission with relation to the subdivision of property shall be observed.

Rule 3. The acreage assigned an individual non-associated gas well for the purpose of allocating allowable gas production thereto shall be known as a gas proration unit, and such acreage may be claimed for each non-associated gas reservoir independently of any other reservoir. No gas proration unit shall contain less than SIX HUNDRED FORTY (640) acres in the Panhandle, West field, or ONE HUNDRED SIXTY (160) acres in the Panhandle, East field except as hereinafter provided; and no such acreage shall be included in any proration unit formed or created subsequent to the effective date of this order and allocated to the well thereon unless the farthestmost two points on the unit created by the inclusion of such acreage be not greater than EIGHT THOUSAND FIVE HUNDRED (8500) feet in the Panhandle, West field and FOUR THOUSAND FIVE HUNDRED (4500) in the Panhandle, East field; provided that tolerance

acreage of ten percent (10%) shall be allowed for each unit so that an amount not to exceed a maximum of SEVEN HUNDRED FOUR (704) acres in the Panhandle, West field and ONE HUNDRED SEVENTY SIX (176) acres in the Panhandle, East field may be assigned, and each unit containing less than SIX HUNDRED FORTY (640) acres in the Panhandle, West field or ONE HUNDRED SIXTY (160) in the Panhandle, East field shall be a fractional proration unit.

Upon the presentation of engineering and/or geological evidence by an operator to the Commission under the provision of Statewide Rule 38, the Commission may approve the drilling of a second gas well on an existing 640 acre gas proration unit where the evidence proves that an additional well is necessary to efficiently and effectively drain that existing unit.

All such proration units shall consist of continuous and contiguous acreage which can reasonably be considered to be productive of gas.

Operators shall file with the Commission certified plats of their properties in said field, which plats shall set out distinctly all of those things pertinent to the determination of the acreage credit claimed for each well unless such filing has already been made; provided that if the acreage assigned to any proration unit has been pooled, the operator shall furnish the Commission with such proof as it may require as evidence that interests in and under such proration unit have been pooled.

Rule 4. The daily allowable production of gas from individual gas wells completed in the Panhandle, West and East gas fields, shall be determined by allocating the allowable production, after deductions have been made for wells which are incapable of

producing their gas allowables, among the individual wells in the following manner:

Two-thirds ($2/3$) of the total field allowable for each field shall be allocated among the individual wells in the proportion that the product of the acreage assigned such well for allowable purposes and the rock pressure of such well bears to the summation of this product for all other proratable gas wells producing from the respective field ($2/3$ acreage times rock pressure).

One third ($1/3$) of the total field allowable for each field shall be allocated among the individual wells in the proportion that the current deliverability of such well bears to the summation of the current deliverabilities for all proratable wells producing from the respective field ($1/3$ current deliverability).

For purposes of this rule, "rock pressure" means shut-in wellhead pressure reported in pounds per square inch absolute (psia) on the most recent gas well status report (Form G-10, as amended, or its successor) for the well.

Rule 5. Separating devices are not required for gas wells completed in dry gas (gas only) horizons. On-lease separating devices (prior to metering) are required where gas wells are completed in depths productive of oil, or in any case where on-lease separating devices would recover over 12 barrels per year of condensate or hydrocarbon liquid. On-lease drip collectors or interceptors are permissible separating devices if all products separated are accurately reported in compliance with Statewide Rules 54 and 85 when removed from the lease. All condensate or hydrocarbon liquid production over 1 barrel per gas well per month recovered on the lease must be reported on the monthly production report.

Rule 6. Gas wells in the Panhandle, West field shall be tested in May, June, July and August of each year, with reports due September first. Gas well test data shall be filed using form G-1 and G-10 rather than forms GWT-10, GWT10-A, GWT-11 and GWT-11A.

No test is required of gas wells in the Panhandle, East Field due to extremely low reservoir pressure.

General Rules

Because it is not always possible to determine the gas-oil contact in an individual wellbore, and a contact when present can vary substantially in subsea elevation across the field, the Commission determines that regulation of the field is best implemented without reference to an absolute gas-oil contact level, but rather by a set of guidelines which are attached as Appendix One to this order.

Existing and future oil wells meeting one of the oil well criteria set forth in Appendix One will be presumed to have been properly completed. Operators shall have a period of one year to bring existing wells into compliance with an Appendix One guideline in order to receive the presumption.

All operators electing to complete a new oil well or add perforation to an existing well such that no Appendix One oil well guideline is met must make such note on their W-2 filing and attach for the Central Records well file a summary of selective test data or other analysis supporting their completion as in a horizon productive of oil, and shall indicate that the District Office and all other oil and gas operators on the same and offsetting sections were notified prior to testing and indicate whether or not testing was witnessed by the District Office or another operator, and the identity of each such witness.

Existing gas wells will be presumed to have been properly completed if they meet one of the gas well completion criteria set forth in Appendix One to the Final Order in this docket. Operators shall have a period of one year to bring existing wells into compliance with an Appendix One guideline in order to receive the presumption.

All operators electing to complete a new gas well or deepen an existing well such that no Appendix One gas well guideline is met must make such note on their G-1 filing and attach for the Central Records well file a summary of selective test data or other analysis supporting their completion as in a horizon productive of dry gas or gas only, and shall indicate that the District Office and all other oil and gas operators on the same and offsetting sections were notified prior to testing and indicate whether or not testing was witnessed by the District Office or another operator, and the identity of each such witness.

Operators shall notify all other Panhandle Field oil and gas operators on the same and offsetting sections at least five days in advance of any test relied upon for compliance with field rules or Appendix One guidelines and shall permit these operators to witness such tests and have copies of any measurements, data, and analysis associated with the tests.

These requirements and guidelines are based on a Commission finding that there is segregation of oil and gas in the Panhandle fields such that the two are generally divided and separated into lower oil intervals and upper gas intervals. For this reason, dual assignment of the same surface acreage to both the oil and the gas fields for recovery from two properly completed and classified wells, one for recovery of oil and the other for recovery of gas, shall be permitted to

continue as it has since the inception of comprehensive field rules in 1935.

An operator with well(s) which fail to meet any of the completion guidelines may file an application for hearing that an exception to the field rules is necessary to prevent waste or protect correlative rights. In connection with any such application, notice must be given to all overlapping and offsetting operators, unleased mineral interests, and other affected entities. If such application is unopposed the Director of Oil and Gas shall be authorized to grant an exception based upon submitted evidence that such exception will in fact prevent waste or protect correlative rights. Such application shall be subject to full discovery by the Commission and other parties.

Once a oil or gas well has been completed in compliance with Appendix 1 guidelines, the presumption of proper completion will continue unless the well is recompleted with perforations at different elevations.

The special rules and directives set forth in Oil and Gas Docket 10-77,314 (LTX product reports and classification) and the related staff memorandum September 24, 1985 are retained. The order authorizing the West Pampa Repressurization program (docket 10-8333) is retained. The Staff Memorandum of December 17, 1973 (District 10 - Lease-wide Testing) is rescinded. All other prior fieldwide rules, directives and memoranda are hereby superceded and rescinded, including but not limited to the following:

Date	Docket No.	Purpose
08/27/30	112	Establishing Field Rules
11/01/30	112	Amending 8/37/30 Order
01/23/31	112	Establishing Field Rules
04/04/31	113	Establishing Field Rules
10/13/31	108	Time limits on drilling
10/30/31	108	Establishing Field Rules
10/30/31	108	Common Purchaser Law
10/30/31	122,119	Rules governing common purchasers
05/09/32	108	25% Open Flow Limit
06/15/32	None	Oil and Gas Circular 15
11/18/32	108	Granting Exemptions
12/06/32	108	Establishing Field Rules
12/30/32	108	Determining Allowable Production
12/30/32	108	Establishing Field Rules
10/17/33	None	Adopting Circular 16-B
05/12/34	108	Amending Rule 2
05/15/34	None	Readopting Circular 16-B
05/24/35	108	Reducing Potentials
07/20/35	108	Fixing Allowable Gas Production
08/01/35	108	Fixing Allowable Gas Production
08/05/35	108	Fixing Allowable Gas Production
08/06/35	108	Changing Method of Taking Potentials
08/28/35	108	Fixing Allowable Gas Production
09/25/35	108	Fixing Allowable Gas Production
10/17/35	108	Fixing Allowable Gas Production
10/23/35	108	Regarding Pending Court Proceedings
11/22/35	108	Changing Method of Taking Potentials
12/10/35	108	Fixing Allowable Gas Production
01/14/36	108	Authorizing Gas-Oil Ratio Survey
02/03/36	108	Amending Above
04/27/36	108	Revoking Authorization of Survey
09/15/36	108	Authorizing Gas-Oil Ratio Survey
02/25/37	108	Setting a Gas-Oil Ratio
10/02/37	10-93	Limiting Gas Volumes
11/18/37	20-169	Fixing Allowable Gas Production
05/04/38	10-316	Fixing Allowable Gas Production
05/25/38	10-338	Amending Above
10/15/38	10-453	Setting Out Rules
11/25/38	10-499	Limiting Gas Volumes
01/14/39	10-548	Amending Above

Date (cont.)	Docket No. (cont.)	Purpose (cont.)
01/18/39	20-550	Classifying Condensate Wells
01/31/39	10-564	Fixing Allowable Gas Production
04/01/39	10-621	Supplementing Above
01/11/40	10-1222	Amending Circular 16-B
03/12/40	10-1384	Promulgating Spacing Rule
03/25/40	10-4449	Fixing Allowable Gas Production
03/28/40	10-1445	Amending Circular 16-B
04/30/40	10-1543	Suspending Above
07/08/40	10-1685	Repressurization of Oil Sands
08/23/40	10-1832	Amending Circular 16-B
11/20/40	10-2080	Fixing Classification Method
08/29/41	10-2898	Amending Circular 16-B
11/13/41	10-3087	Limiting Gas Volumes
04/06/42	10-3593	Limiting Gas Production
10/29/42	10-4135	Limiting Gas Production
05/19/43	10-4833	Limiting Gas Production
08/14/44	10-6600	Amending Spacing Rules
05/24/48	10-12,465	Requiring Well Tests
09/24/48	10-13,196	Sweet and Sour Gas
01/10/49	10-13,783	Amending Above.
02/06/50	10-17,595	Amending Above
12/19/51	10-22,479	Roughness Friction Factor
03/04/52	10-23,060	Determination of Absolute Potentials
06/09/52	10-23,807	Amending Order No. 10-13,196
06/30/52	10-23,955	Rescinding Order No. 10-23,807 (Except retaining the boundary line between the East and the West Gas fields as set forth in this order.)
07/21/52	10-24,144	Amending Order No. 10-23,060
09/18/52	10-24,493	Gas Measurement Rules
05/19/54	10-29,542	Gas Well Testing Rules
05/19/54	10-29,544	Gas Well Testing Rules
08/30/54	10-30,121	Amending Rule 3(c)
11/07/55	10-32,363	Revising East Field Rules
09/16/57	10-36,290	Requiring Gas-Oil Ratio Surveys
11/22/60	10-44,633	East Field Operating Rules
10/11/77	10-67,681	GOR Test Procedures

IT IS FURTHER ORDERED THAT each exception to the examiners' proposal for decision not expressly granted herein is hereby overruled. All requested findings of fact and conclusions of law which are not expressly adopted herein are denied. All pending motions not previously granted or granted herein are hereby denied.

Signed this 20th day of March, 1989. This order shall be effective from and after May 1, 1989.

RAILROAD COMMISSION OF TEXAS

/s/ John Sharp,
Commissioner

/s/ Jim Nugent,
Commissioner

Attest

Secretary

Appendix 1 Guidelines for Compliance

Oil Wells

Because the gas-oil contact varies and is not clearly defined in all parts of the field, and because remedial work on old wellbores is sometimes ineffective, fraught with risk of damage to the well, and for economic reasons may cause premature abandonment of a well producing crude oil, the following guidelines are offered as "fingerprints" indicating presumed compliance with field rules which prohibit perforation of oil wells in dry gas horizons.

Commission staff engineers will assume a Panhandle oil well is properly completed if it tests and produces at a gas-oil ratio of less than 100,000:1 (statutory requirement) and it meets any one of the following criteria and there is no evidence of inaccurate reporting of perforations or formation tops and bottoms and there is no evidence of inaccurate reporting of oil or gas production or test volumes. This will be a rebuttable presumption, but the complainant shall bear the burden of proof.

1. The top of perforations is at or below +250 feet (sea level datum).

(Gillespie Exhibit 32; 95% of all cable tool drillers' log first oil shows are at or below +250).

2. The most recent 12 month average producing GOR does not exceed 5000:1.

(85.6% of all oil wells in the field pass this test. Passing leases have an average lease GOR of 2742:1; Gillespie exhibit 66, Tr. 8816, 9070)

(In July of 1935, 92.6% of all oil produced in the field came from wells having a GOR at or below 20,000:1, Hearing of July 18, 1935, p. 72, CIG Exhibit 1)

(For the 12 month period preceding August, 1986, the affected leases produced 17% of the oil and 71% of the reported casinghead gas in the field. (Tr. 8820).

3. A test of the isolated 50 foot interval below the top of perforations yields enough oil on stabilized 72 hour test to classify as a statutory oil well, notice of such test to be provided at least five days in advance to the RRC District 10 office and to all oil and gas operators on the same and offsetting sections. Such test may be witnessed by any person with an affected interest. It is intended this test be required only to assist the operator in qualifying the wells under these guidelines, and shall not be required thereafter unless directed by the Commission.

(Where there are both producible oil and free gas horizons, there may be a transition zone of up to 50 feet between the two. Tr. 7729, 7422, 8416, 8440).

4. The well is located in a structurally anomalous area of high oil, this category to be limited to the following structural features, and:

a. Top of perforations is at or below +350 (sea level datum).

1. Rockwall County School Land Low - Gray County

- R.C.S.L. Survey Sections 1-15

- C.C.S.D.R.G.N.G. R.R. Survey Sections 1-10

(Bay exhibits 16 and 80)

2. Deep Lake Graben - Gray County

- H.&G.N. R.R. Survey Block B-2

Sections 79, 80, 100-102, 110, 111, 129, 130, 141-143, 157, 160, 171-174, 187-189, and 202-204

(Bay exhibits 16, 24 and 80, Reynolds exhibit 21)

3. LeFors Graben Margin - Gray County

- H.&G.N. R.R. Survey Block B-2

Sections 7, 8, 24, 25, 36, 37, 55, 56, 65, 66, 85-87, 94, 95.

116 and 117

(Bay exhibits 15, 16 and 29)

4. White Deer Graben - Carson County

- I.&G.N. R.R. Survey Block 4

Sections 50, 51, 52, 58, 59 and 60

(Bay exhibits 15, 16, 22, 34 and 35)

5. Deahl Low - Carson County

- A.B.&M. Survey Block 3

Sections 4, 5, 6, 7 and 8

- B.S.&F. Survey

Sections 2 and 4 (N. and E. of Deal Community)

(Bay exhibits 15 and 16)

6. Mother Goose Grabin - Moore County

- G.&M. Survey Block 2

Sections 5, 6, 7 and 8

(Bay exhibits 16, 62 and 64)

b. Top of perforation is at or below +450 (sea level datum).

1. Carson County Basin East Margin -
Carson County

-I.&G.N. R.R. Survey Block 7

Sections 43-46, 62-66, 69-71, 84 and 85

(Bay exhibits 15, 16, 22, 28 and 80,
Reynolds exhibits 6 and 7, Stumpf exhibit
18)

2. Carson County Basin North Margin -
Carson County - I.&G.N. R.R. Survey
Block 7

Sections 10-16, 28 and 29

(Bay exhibits 15, 16 and 33)

3. Bell Low - Gray County

- H.&G.N. R.R. Survey Block 2

Sections 124, 147, 153, 154, 177-179, 183-
185, 206-208 and 214 (Bay exhibits 15, 16
and 80)

5. The top of perforations is lower than the base
of perforations in any producing gas well(s) located
within a one mile radius of the subject well.

(July 8, 1985 Commission Memorandum to
all operators in the fields, page 2,
paragraph 3.)

6. The well has produced not more than 20,000
cubic feet of gas per day (24) hours) during the most
recent Railroad Commission test (either W-2 test or W-
10 test) and the most recent 12-month average
production is not more than 20,000 cubic feet of gas per
day.

(Tr. 5987, 8807, Gillespie Exhibit 2 page 3)

Gas Wells

In order to provide parity and equity with the
presumptions afforded oil well completions under these

guidelines, the following are proposed as "fingerprints" indicating presumed compliance with field rules which prohibit perforation of gas wells in horizons productive of oil.

Commission staff engineers will assume a Panhandle gas well is properly completed if it tests and produces at a gas-oil ratio of more than 100,000:1 (statutory requirement) and it meets any one of the following criteria and there is no evidence of inaccurate reporting of perforations or formation tops and bottoms and there is no evidence of inaccurate reporting of oil or gas production or tested volumes. This will be a rebuttable presumption, but the complainant shall bear the burden of proof.

1. The bottom of perforations is at or above +50 feet (sea level datum), except in the Oil Well Guidelines Section Four areas where proper completion is presumed if above +350 feet (sea level datum) in area 4(a) or +450 feet (sea level datum) in area 4(b).

(Gillespie exhibit 33; 95% of lowest known gas shows on cable tool driller's logs occur above +50 feet).

2. The most recent 12 month average production of liquid hydrocarbons of any kind does not exceed one *barrel per month.

(Johnston exhibit 5; Tr. 5140, 5147).

3. A test of the isolated 50 foot interval above the bottom of perforations produces at a gas-oil ratio of over 100,000 cubic feet of gas per barrel of oil on a stabilized 72 hour test, notice of such test to be provided

at least 5 days in advance to the RRC District 10 Office and to all oil or gas operators on the same and offsetting sections, such test may be witnessed by any person with an affected interest. It is intended this test be required only to assist the operator in qualifying the wells under these guidelines, and shall not be required thereafter unless directed by the Commission.

4. The producing interval of the well is not overlapped by the perforations of a producing oil well within a one mile radius of the subject well.

(July 8, 1985 Commission memorandum to all operators in the fields, p. 2, paragraph 3.)

EXHIBIT F

§81.051. Jurisdiction of Commission

(a) The commission has jurisdiction over all:

(1) common carrier pipelines defined in Section 111.002 of this code in Texas;

(2) oil and gas wells in Texas;

(3) persons owning or operating pipelines in Texas; and

(4) persons owning or engaged in drilling or operating oil or gas wells in Texas.

(b) Persons listed in Subsection (a) of this section and their pipelines and oil and gas wells are subject to the jurisdiction conferred by law on the commission.

§81.052. Rules

The commission may adopt all necessary rules for governing and regulating persons and their operations under the jurisdiction of the commission as set forth in Section 81.051, including such rules as the commission may consider necessary and appropriate to implement state responsibility under any federal law or rules governing such persons and their operations.

§81.053. Commission Powers

In the discharge of its duties and the enforcement of its jurisdiction under this title, the commission shall:

- (1) institute suits;
- (2) hear and determine complaints;
- (3) require the attendance of witnesses and pay their expenses out of funds provided for that purpose;
- (4) obtain the issuance of writs and process which may be necessary for the enforcement of its orders; and
- (5) punish for contempt or disobedience of its orders in the manner provided for the district courts.

§85.041. Acts Prohibited in Violation of Laws, Rules, and Orders

(a) The purchase, acquisition, or sale, or the transporting, refining, processing, or handling in any other way, of oil or gas, produced in whole or in part in violation of any oil or gas conservation statute of this state or of any rule or order of the commission under such a statute, is prohibited.

(b) The purchase, acquisition, or sale, or the transporting, refining, processing, or handling in any other way, of any product of oil or gas which is derived in whole or in part from oil or gas or any product of either, which was in whole or in part from oil or gas or any product of either, which was in whole or part produced, purchased, acquired, sold, transported, refined, processed, or handled in any other way, in violation of any oil or gas conservation statute of this state, or of any rule or order of the commission under such a statute, is prohibited.

§85.042. Rules and Orders

(a) The commission may promulgate and enforce rules and orders necessary to carry into effect the provisions of Section 85.041 of this code and to prevent that section's violation.

(b) When necessary, the commission shall make and enforce rules either general in their nature or applicable to particular fields for the prevention of actual waste of oil or operations in the field dangerous to life or property.

§85.043. Application of Certain Rules and Orders

If the commission requires a showing that refined products were manufactured from oil legally produced, the requirement shall be of uniform application throughout the state; provided that, if the rule or order is promulgated for the purpose of controlling a condition in any local area or preventing a violation in any local area, then on the complaint of a person that the same or similar conditions exist in some other local area and the promulgation and enforcement of the rule could be beneficially applied to that additional area, the commission shall determine whether or not those conditions do exist, and if it is shown that they do, the rule or order shall be enlarged to include the additional area.

§85.044. Exempt Purchases

The provisions of Sections 85.041 through 85.043 of this code do not apply to the purchase of products of oil if made by the ultimate consumer from a retail distributor of the products.

§85.045. Waste Illegal and Prohibited

The production, storage, or transportation of oil or gas in a manner, in an amount, or under conditions that constitute waste is unlawful and is prohibited.

§85.046. Waste

(a) The term "waste," among other things, specifically includes:

(1) operation of any oil well or wells with an inefficient gas-oil ratio and the commission may determine and prescribe by order the permitted gas-oil ratio for the operation of oil wells;

(2) drowning with water a stratum or part of a stratum that is capable of producing oil or gas or both in paying quantities;

(3) underground waste or loss, however caused and whether or not the cause of the underground waste or loss is defined in this section;

(4) permitted any natural gas well to burn wastefully;

(5) creation of unnecessary fire hazards;

(6) physical waste or loss incident to or resulting from drilling, equipping, locating, spacing, or operating a well or wells in a manner that reduces or tends to reduce the total ultimate recovery of oil or gas from any pool;

(7) waste or loss incident to or resulting from the unnecessary, inefficient, excessive, or improper use of the reservoir energy, including the gas energy or water drive, in any well or pool; however, it is not the intent of this section or the provisions of this chapter that were formerly a part of Chapter 26, Acts of the 42nd

Legislature, 1st Called Session, 1931, as amended, to require repressuring of an oil pool or to require that the separately owned properties in any pool be unitized under one management, control, or ownership;

(8) surface waste or surface loss, including the temporary or permanent storage of oil or the placing of any product of oil in open pits or earthen storage, and other forms of surface waste or surface loss including unnecessary or excessive surface losses, or destruction without beneficial use, either of oil or gas;

(9) escape of gas into the open air in excess of the amount necessary in the efficient drilling or operating of the well from a well producing both oil and gas;

(10) production of oil in excess of transportation or market facilities or reasonable market demand, and the commission may determine when excess production exists or is imminent and ascertain the reasonable market demand; and

(11) surface or subsurface waste of hydrocarbons, including the physical or economic waste or loss of hydrocarbons in the creation, operation, maintenance, or abandonment of an underground hydrocarbon storage facility.

(b) Notwithstanding the provisions contained in this section or elsewhere in this code or in other statutes or laws, the commission may permit production by commingling oil or gas or oil and gas from multiple stratigraphic or lenticular accumulations of oil or gas or oil and gas where the commission, after notice and

hearing, has found that producing oil or gas or oil and gas in a commingled state will prevent waste, promote conservation, or protect correlative rights.

§85.047. Exclusion From Definition of Waste

The use of gas produced from an oil well within the permitted gas-oil ratio for manufacture of natural gasoline shall not be included in the definition of waste.

§85.048. Authority to Limit Production

(a) Under the provisions of Subsection (10), Section 85.046 of this code, the commission shall not restrict the production of oil from any new field brought into production by exploration until the total production from that field is 10,000 barrels of oil a day in the aggregate.

(b) The commission's authority to restrict production from a new field under other provisions of Section 86.046 of this code is not limited by this section.

§85.049. Hearing

(a) On verified complaint of any person interested in the subject matter than waste of oil or gas is taking place in this state or is reasonably imminent, or on its own initiative, the commission, after proper

notice, may hold a hearing to determine whether or not waste is taking place or is reasonably imminent and if any rule or order should be adopted or if any other actions should be taken to correct, prevent, or lessen the waste.

(b) The hearing shall be held at the time and place determined by the commission.

§85.050. Procedure of Hearings

(a) At the hearing, parties shall be entitled to be heard and to introduce evidence and require the attendance of witnesses.

(b) The production of evidence may be required as provided by law.

§85.051. Adoption of Rule or Order

If the commission finds at the hearing that waste is taking place or is reasonably imminent, it shall adopt a rule or order in the manner provided by law as it considers reasonably required to correct, prevent, or lessen the waste.

§85.052. Compliance With Rule or Order

From and after the promulgation of a rule or order of the commission, it is the duty of each person affected by the rule or order to comply with it.

§85.053. Distribution, Proration, and Apportionment of Allowable Production

(a) If a rule or order of the commission limits or fixes in a pool or portion of a pool the production of oil, or the production of gas from wells producing gas only, the commission shall distribute, prorate, or otherwise apportion or allocate the allowable production among the various producers on a reasonable basis.

(b) When, as provided in Subsection (b) of Section 85.046 or Subsection (b) of Section 86.012 of this code, as amended, the commission has permitted production by commingling oil or gas or oil and gas from multiple stratigraphic or lenticular accumulations of oil or gas or oil and gas, the commission may distribute, prorate, apportion, or allocate the production of such commingled separate multiple stratigraphic or lenticular accumulations of oil or gas or oil and gas as if they were a single pool; provided, however, that:

(i) the commingling and distribution, proration, apportionment, or allocation of separate accumulations with commission established discovery dates after January 1, 1940, and prior to June 1, 1945, shall not serve to expand, add to, or extend the vertical or areal extent of any single pool;

(ii) such commingling shall not cause the allocation of allowable production from a well producing from any separate accumulation or accumulations to be less than that which would result from the commission applying the provisions of Section 86.095 of this code to such accumulation or accumulations;

(iii) the allocation of the allowable for such commingled production shall be based on not less than two factors which the Railroad Commission shall take into account as directed by Section 86.089 of this code; and

(iv) No gas well in any field falling within the classification under Subdivision (i) above where commingled separate accumulations of gas are being prorated under the authority granted by this Subsection (b) shall be assigned an allowable in excess of its production during the most recent production period reported to the commission and in the absence of any reported production the assigned allowable shall not exceed the open-flow potential of such well as reported to the commission; provided, however, that the commission may, if it finds special conditions require such, make a greater assignment.

§85.054. Allowable Production of Oil

(a) To prevent unreasonable discrimination in favor of one pool as against another, and on written complaint and proof of such discrimination, the commission may allocate or apportion the allowable production of oil on a fair and reasonable basis among the various pools in the state.

(b) In allocating or ascertaining the reasonable market demand for the entire state, the reasonable market demand of one pool shall not be discriminated against in favor of another pool.

(c) The commission shall determine the reasonable market of the respective pool as the basis for determining the allotments to be assigned to the respective pool so that discrimination may be prevented.

§85.055. Allowable Production of Gas

(a) If full production from wells producing gas only from a common source of supply of gas in this state is in excess of the reasonable market demand, the commission shall inquire into the production and reasonable market demand for the gas and shall determine the allowable production from the common source of supply.

(b) The allowable production from a common source of supply is that portion of the reasonable market demand that can be produced without waste.

(c) The commission shall allocate, distribute, or apportion the allowable production from the common source of supply among the various producers on a reasonable basis and shall limit the production of each producer to the amount allocated or apportioned to the producer.

(d) When, as provided in Subsection (b) of Section 85.046 or Subsection (b) of Section 86.012 of this code, as amended, the commission has permitted production by commingling oil or gas or oil and gas from multiple stratigraphic or lenticular accumulations of oil or gas or oil and gas, the commission may allocate, distribute, or apportion the production of such commingled separate multiple stratigraphic or lenticular accumulations of oil or gas or oil and gas as if they were a single common source of supply; provided, however, that:

(i) The commingling and distribution, proration, apportionment, or allocation of separate accumulations with commission established discovery dates after January 1, 1940, and prior to June 1, 1945, shall not serve to expand, add to, or extend the vertical or areal extent of any single common source of supply;

(ii) such commingling shall not cause the allocation of allowable production from a well producing from any separate accumulation or accumulations to be less than that which would result from the commission, applying the provisions of Section 86.095 to such accumulation or accumulations;

(iii) the allocation of the allowable for such commingled production shall be based on not less than two such factors which the Railroad Commission shall take into account as directed by Section 86.089 of this code; and

no gas well in any field falling within the classification under (i) above where commingled separate accumulations of gas are being prorated under the authority granted by this Subsection (d) shall be assigned an allowable in excess of its production during the most recent production period reported to the commission and in the absence of any reported production the assigned allowable shall not exceed the open-flow potential of such well as reported to the commission; provided, however, that the commission may, if it finds special conditions require such, make a greater assignment.

§85.201. Adoption of Rules and Orders

The commission shall make and enforce rules and orders for the conservation of oil and gas and prevention of waste of oil and gas.

§85.202. Purposes of Rules and Orders

(a) The rules and orders of the commission shall include rules and orders:

(1) to prevent waste, as defined in Section 85.046 of this code, of oil and gas in drilling and producing operations and in the storage, piping, and distribution of oil and gas;

(2) to require dry or abandoned wells to be plugged in a manner that will confine oil, gas, and water in the strata in which they are found and prevent them from escaping into other strata;

(3) for the drilling of wells and preserving a record of the drilling of wells;

(4) to require wells to be drilled and operated in a manner that will prevent injury to adjoining property;

(5) to prevent oil and gas and water from escaping from the strata in which they are found into other strata;

(6) to provide rules for shooting wells and for separating oil from gas;

(7) to require records to be kept and reports made; and

(8) to provide for issuance of permits, tenders, and other evidences of permission when the issuance of the permits, tenders, or permission is necessary or incident to the enforcement of the commission's rules or orders for the prevention of waste.

(b) The commission shall do all things necessary for the conservation of oil and gas and prevention of waste of oil and gas and may adopt other rules and orders as may be necessary for those purposes.

§85.241. Suits by Interested Persons

Any interested person who is affected by the conservation laws of this state or orders of the commission relating to oil or gas and the waste of oil or gas, and who is dissatisfied with any of these laws or orders, may file suit against the commission or its members in a court of competent jurisdiction in Travis County to test the validity of the law or order.

§86.002. Definitions

In this chapter:

(1) "Oil" means crude petroleum oil.

(2) "Gas" means natural gas.

(3) "Commission" means the Railroad Commission of Texas.

(4) "Common reservoir" means all or part of any oil or gas field or oil and gas field that comprises and includes any area that is underlaid or that, from geological or other scientific data or experiments or from drilling operations or other evidence, appears to be underlaid by a common pool or accumulation of oil or gas or oil and gas.

(5) "Gas well" means a well that:

(A) produces gas not associated or blended with oil at the time of production;

(B) produces more than 100,000 cubic feet of gas to each barrel of oil from the same producing horizon; or

(C) produces gas from a formation or producing horizon productive of gas only encountered in a well bore through which oil also is produced through the inside of another string of casing.

(6) "Oil well" means any well that produces one barrel or more of oil to each 100,000 cubic feet of gas.

(7) "Dry gas" means gas produced from a stratum that does not produce oil.

(8) "Sour gas" means gas:

(A) containing more than one and one-half grains of hydrogen sulphide per 100 cubic feet;

(B) containing more than 30 grains of total sulphur per 100 cubic feet; or

(C) which in its natural state is found by the commission to be unfit for use in generating light or fuel for domestic purposes.

(9) "Sweet gas" means all gas except sour gas and casinghead gas.

(10) "Casinghead gas" means any gas or vapor indigenous to an oil stratum and produced from the stratum with oil.

(11) "Natural gasoline" means gasoline manufactured from casinghead gas or from any gas.

(12) "Cubic foot of gas" or "standard cubic foot of gas" means the volume of gas, including natural and casinghead gas, contained in one cubic foot of space at a standard pressure base of 14.65 pounds per square inch absolute and at a standard temperature base of 60 degrees Fahrenheit, and if the conditions of pressure and temperature differ from this standard, conversion of the volume from the differing conditions to the standard conditions shall be made in accordance with the ideal gas laws, corrected for deviation.

§86.011. Prohibition Against Waste

The production, transportation, or use of gas in a manner, in an amount, or under conditions which constitute waste is unlawful and is prohibited.

§86.012. Definition of Waste

(a) The term "waste" includes:

(1) the operation of an oil well or wells with an inefficient gas-oil ratio;

(2) the drowning with water of a stratum or part of a stratum capable of producing gas in paying quantities;

(3) permitting a gas well to burn wastefully;

(4) the creation of unnecessary fire hazards;

(5) physical waste or loss incident to or resulting from so drilling, equipping, or operating a well or wells as to reduce or tend to reduce the ultimate recovery of gas from any pool;

(6) the escape of gas from a well producing both oil and gas into the open air in excess of the amount that is necessary in the efficient drilling or operation of the well;

(7) the production of gas in excess of transportation or market facilities or reasonable market demand for the type of gas produced;

(8) the use of gas for the manufacture of carbon black without first having extracted the natural gasoline content from the gas, except it shall not be necessary to first extract the natural gasoline content from the gas where it is utilized in a plant producing an average recovery of not less than five pounds of carbon black to each 1,000 cubic feet of gas;

(9) the use of sweet gas produced from a gas well for the manufacture of carbon black unless it is used in a plant producing an average recovery of not less than five pounds of black to each 1,000 cubic feet and unless the sweet gas is produced from a well located in a common reservoir producing both sweet and sour gas;

(10) permitting gas produced from a gas well to escape into the air before or after the gas has been processed for its gasoline content, unless authorized as provided in Section 86.185 of this code;

(11) the production of natural gas from a well producing oil from a stratum other than that in which the oil is found unless the gas is produced in a separate string of casing from that in which the oil is produced;

(12) the production of more than 100,000 cubic feet of gas to each barrel of crude petroleum oil unless the gas is put to one or more of the uses authorized for the type of gas so produced under allocations made by the commission or unless authorized as provided in Section 86.185 of this code; and

(13) underground waste or loss however caused and whether or not defined in other subdivisions of this section.

(b) Notwithstanding the provisions contained in this section or elsewhere in this code or in other statutes or laws, the commission may permit production by commingling oil or gas or oil and gas from multiple stratigraphic or lenticular accumulations of oil or gas or oil and gas where the commission, after notice and hearing, has found that producing oil or gas or oil and gas in a commingled state will prevent waste, promote conservation, or protect correlative rights.

§86.041. In General

The commission has broad discretion in administering the provisions of this chapter and may adopt any rule or order in the manner provided by law that it finds necessary to effectuate the provisions and purposes of this chapter.

§86.042. Rules and Orders

The commission shall adopt and enforce rules and orders to:

- (1) conserve and prevent the waste of gas;
- (2) prevent the waste of gas in drilling and producing operations and in the piping and distribution of gas;
- (3) require dry or abandoned wells to be plugged in a way that confines gas and water in the strata in which they are found and prevents them from escaping into other strata;
- (4) provide for drilling wells and preserving a record of them;
- (5) require wells to be drilled and operated in a manner that prevents injury to adjoining property;
- (6) prevent gas and water from escaping from the strata in which they are found into other strata;
- (7) require records to be kept and reports made;
- (8) provide for the issuance of permits and other evidences of permission when the issuance of the permit or permission is necessary or incident to the enforcement of its blanket grant of authority to make any rules necessary to effectuate the law; and
- (9) otherwise accomplish the purposes of this chapter.

§86.081. Regulation of Production

(a) For the protection of public and private interests, the commission shall prorate and regulate the daily gas well production from each common reservoir to:

(1) prevent waste; and

(2) adjust the correlative rights and opportunities of each owner of gas in a common reservoir to produce and use or sell the gas as permitted in this chapter.

(b) When, as provided in Subsection (b) of Section 85.046 or Subsection (b) of Section 86.012 of this code, as amended, the commission has permitted production by commingling oil or gas or oil and gas from multiple stratigraphic or lenticular accumulations of oil or gas or oil and gas, the commission may prorate, allocate, and regulate the production of gas or oil and gas, the commission may prorate, allocate, and regulate the production of such commingled, separate multiple stratigraphic or lenticular accumulations of oil or gas or oil and gas as if they were a single common reservoir; provided, however, that:

(i) the commingling and distribution, proration, apportionment, or allocation of separate accumulations with commission established discovery dates after January 1, 1940, and prior to June 1, 1945, shall not serve to expand, add to, or extend the vertical or areal extent of any single common reservoir;

(ii) such commingling shall not cause the allocation of allowable production from a well producing from any separate accumulation or accumulations to be less than that which would result from the commission applying the provisions of Section 86.095 of this code to such accumulation or accumulations;

(iii) the allocation of the allowable for such cummingled production shall be based on not less than two factors which the Railroad Commission shall take into account as directed by Section 86.089 of this code; and

no gas well in any field falling within the classification under Subdivision (i) above where commingled separate accumulations of gas are being prorated under the authority granted by this Subsection (b) shall be assigned an allowable in excess of its production during the most recent production period reported to the commission and in the absence of any reported production the assigned allowable shall not exceed the open-flow potential of such well as reported to the commission; provided, however, that the commission may, if it finds special conditions require such, make a greater assignment.

§86.082. Exercise of Authority to Prevent Waste

The commission shall exercise its authority to prevent waste when the presence or imminence of waste is supported by a finding based on the evidence introduced at a hearing after proper notice.

§86.083. Exercise of Authority to Adjust Correlative Rights and Opportunities

The commission shall exercise its authority to adjust correlative rights and opportunities of each owner of gas in a common reservoir to produce and use or sell the gas when evidence introduced at a hearing after proper notice will support a finding made by the commission that the aggregate lawful volume of the open flow or daily potential capacity to produce of all gas wells located in a common reservoir is in excess of the daily reasonable market demand for gas from gas wells that may be produced from the common reservoir, to be used as permitted in this chapter.

§86.084. Determination of Status of Production

(a) The commission shall determine the status of gas production from all reservoirs in the state.

(b) If the commission finds that waste exists or is imminent in the production of gas from a reservoir, or that the capacity of the wells to produce gas from a reservoir exceeds the market demand for gas from the reservoir, the commission by proper order shall prorate and regulate the gas production from the reservoir on a reasonable basis.

§86.093. Effect of Oil and Gas Stratum on Gas Only Stratum

If gas is produced from one stratum and oil and gas are produced from another stratum in the same well bore, the commission shall take into account the amount of gas produced from the oil stratum in determining the amount of gas that may be produced from the stratum producing gas only. The commission may subtract the amount of the casinghead gas produced from the dry gas that would be allocated to the well if it produced dry gas and may restrict the dry gas production accordingly.

§86.094. Authority to Increase Take Above Allowable

If unforeseen contingencies increase the demand for gas required by a distributor, transporter, or purchaser to an amount in excess of the total allowable production of the wells to which he is connected, the distributor, transporter, or purchaser may increase his take ratably from all these wells in order to supply his demand for gas, provided that notice of the increase and the amount of the increase are given to the commission within five days; and provided further, the commission, at its next hearing, shall adjust the inequality of withdraws caused by the increase in fixing the allowable production of the various wells in the common reservoir or zones.

§86.095. Zoning Common Reservoirs

(a) The commission shall zone a common reservoir if, on consideration of the evidence introduced at a hearing, it finds that either the prevention of waste or adjustment of correlative rights and opportunities, or both, as designated in Section 86.081 of this code, may be accomplished more adequately by zoning the common reservoir.

(b) If the commission zones a common reservoir, each zone shall be regarded as a separate common reservoir in making allocations of daily allowable production as provided in this chapter.

(c) If the commission zones a common reservoir, the commission:

(1) shall allocate to each zone its just proportion of the market demand for gas from the common reservoir;

(2) shall establish appropriate rules applicable to each zone;

(3) may adjust its orders to the practicable conditions that exist; and

(4) may enter any reasonable order necessary to effectuate the purposes of this chapter.

(d) The commission may segregate a sour gas area from a sweet gas area and is not required to restrict the allowable production of the sour gas zone to the same percentages that may be produced from the sweet gas zone.

§86.096. Failure to Use or Sell Allowable Production

If the commission finds that the owner of a gas well failed or refused to use or sell the allowable production from his well when the owner was offered a connection or market for the gas at a reasonable price, the well shall be excluded from consideration in allocating the daily allowable production from the reservoir or zone in which it is located until the owner of the well signifies to the commission his desire to use or sell the gas. In all other cases, all gas wells shall be taken into account in allocating the allowable production among wells producing the same type of gas.

§86.097. Production of Gas From Oil Well

No person in possession of or operating an oil well may produce from the oil well gas found in a horizon productive of gas only.

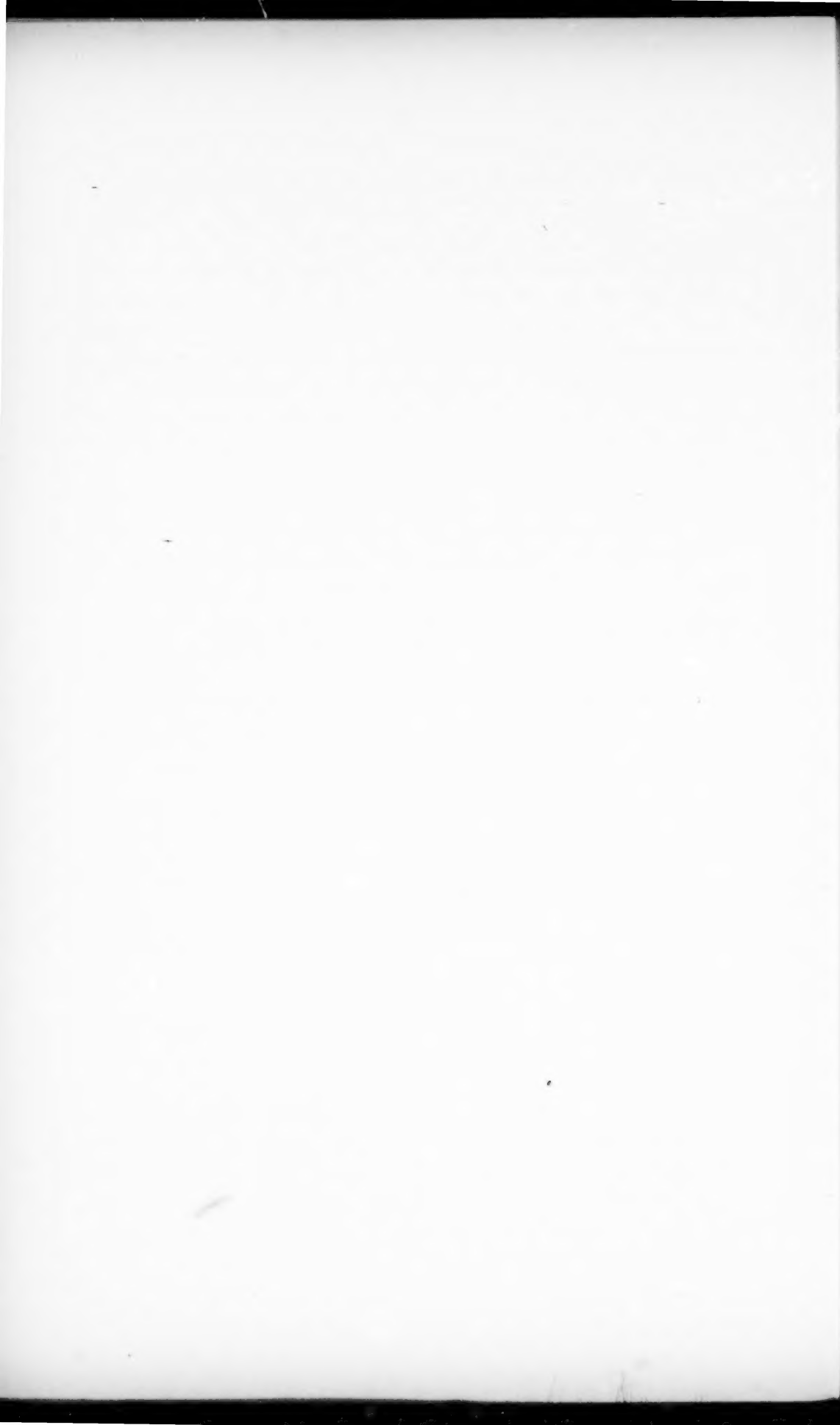


EXHIBIT G

§3.10. Restriction of Production of Oil and Gas from Different Strata

(a) General prohibition. Oil or gas shall not be produced from different strata through the same string of casing except as provided in this section.

(b) Exception.

(1) After notice and hearing, the commission may grant an exception to subsection (a) of this section to permit production from a well or wells commingling oil or gas or oil and gas from two separate reservoirs or multiple stratigraphic or lenticular accumulations of oil or gas or oil and gas if commingled production will:

(A) prevent waste;

(B) promote conservation rights; or

(C) protect correlative rights.

(2) Subsequent exceptions for wells producing from the same reservoirs may be granted administratively without further notice and hearing.

(c) Commingled production. Commingled production of gas pursuant to subsection (b) of this section shall be considered production from a common source of supply for purposes of proration and allocation.

§3.13. Casing, Cementing, Drilling, and Completion Requirements

(a) General.

(1) The operator is responsible for compliance with this section during all operations at the well. It is the intent of all provisions of this section that casing be securely anchored in the hole in order to effectively control the well at all times, all usable-quality water zones be isolated and sealed off to effectively prevent contamination or harm, and all potentially productive zones be isolated and sealed off to prevent vertical migration of fluids or gases behind the casing. When the section does not detail specific methods to achieve these objectives, the responsible party shall make every effort to follow the intent of the section, using good engineering practices and the best currently available technology.

(2) Definitions. The following words and terms, when used in this chapter, shall have the following meanings, unless the context clearly indicates otherwise:

(A) Stand under pressure - To leave the hydrostatic column pressure in the well acting as the natural force without adding any external pump pressure. The provisions are complied with if a float collar is used and found to be holding at the completion of the cement job.

(B) Zone of critical cement - For surface casing strings shall be the bottom 20% of the casing string, but shall be no

more than 1,000 feet nor less than 300 feet. The zone of critical cement extends to the land surface for surface casing strings of 300 feet or less.

(C) Protection depth - Depth to which usable-quality water must be protected, as determined by the Texas Department of Water Resources, which may include zones that contain brackish or saltwater if such zones are correlative and/or hydrologically connected to zones that contain usable-quality water.

(D) Productive horizon - Any stratum known to contain oil, gas, or geothermal resource in commercial quantities in the area.

(b) Onshore and inland waters.

(1) General.

(A) All casing cemented in any well shall be steel casing that has been hydrostatically pressure tested with an applied pressure at least equal to the maximum pressure to which the pipe will be subjected in the well. For new pipe, the mill test pressure may be used to fulfill this requirement. As an alternative to hydrostatic testing, a full length electromagnetic, ultrasonic, radiation thickness gauging, or magnetic particle inspection may be employed.

(B) Wellhead assemblies shall be used on wells to maintain surface control

of the well. Each component of the wellhead shall have a pressure rating equal to or greater than the anticipated pressure to which that particular component might be exposed during the course of drilling, testing, or producing the well.

(C) A blowout preventer or control head and other connections to keep the well under control at all times shall be installed as soon as surface casing is set. This equipment shall be of such construction and capable of such operation as to satisfy any reasonable test which may be required by the commission or its duly accredited agent.

(D) When cementing any string of casing more than 200 feet long, before drilling the cement plug the operator shall test the casing at a pump pressure in pounds per square inch (psi) calculated by multiplying the length of the casing string by 0.2. The maximum test pressure required, however, unless otherwise ordered by the commission, need not exceed 1,500 psi. If, at the end of 30 minutes, the pressure shows a drop of 10% or more from the original test pressure, the casing shall be condemned until the leak is corrected. A pressure test demonstrating less than a 10% pressure drop after 30 minutes is proof that the condition has been corrected.

(2) Surface casing.

(A) Amount required.

(i) An operator shall set and cement sufficient surface casing to protect all usable quality water strata, as defined by the Texas Department of Water Resources. Before drilling any well in any field or area in which no field rules are in effect or in which surface casing requirements are not specified in the applicable field rules, an operator shall obtain a letter from the Texas Department of Water Resources stating the protection depth. In no case, however, is surface casing to be set deeper than 200 feet below the specified depth without prior approval from the commission.

(ii) Any well drilled to a total depth of 1,000 feet or less below the ground surface may be drilled without setting surface casing provided no shallow gas sands or abnormally high pressures are known to exist at depths shallower than 1,000 feet below the ground surface; and further, provided that production casing is cemented from the shoe to the ground surface by the pump and plug method.

(B) Cementing. Cementing shall be by the pump and plug method. Sufficient

cement shall be used to fill the annular space outside the casing from the shoe to the ground surface or to the bottom of the cellar. If cement does not circulate to ground surface or the bottom of the cellar, the operator or his representative shall obtain the approval of the district director for the procedures to be used to perform additional cementing operations, if needed, to cement surface casing from the top of the cement to the ground surface.

(C) Cement quality.

(i) Surface casing strings must be allowed to stand under pressure until the cement has reached a compressive strength of at least 500 psi in the zone of critical cement before drilling plug or initiating a test. The cement mixture in the zone of critical cement shall have a 72-hour compressive strength of at least 1,200 psi.

(ii) An operator may use cement with volume extenders above the zone of critical cement to cement the casing from that point to the ground surface, but in no case shall the cement have a compressive strength of less than 100 psi at the time of drill out nor less than 250 psi 24 hours after being placed.

(iii) In addition to the minimum compressive strength of

the cement, the API free water separation shall average no more than six milliliters per 250 milliliters of cement tested in accordance with the current API RP 10B.

(vi) The commission may require a better quality of cement mixture to be used in any well or any area if evidence of local conditions indicates a better quality of cement is necessary to prevent pollution or to provide safer conditions in the well or area.

(D) Compressive strength tests. Cement mixtures for which published performance data are not available must be tested by the operator or service company. Tests shall be made on representative samples of the basic mixture of cement and additives used, using distilled water or potable tap water for preparing the slurry. The tests must be conducted using the equipment and procedures adopted by the American Petroleum Institute, as published in the current API RP 10B. Test data showing competency of a proposed cement mixture to meet the above requirements must be furnished the commission prior to the cementing operation. To determine that the minimum compressive strength has been obtained, operators shall use the typical performance data for the particular cement used in the well (containing all the additives, including any accelerators used in the slurry) at the following

temperatures and at atmospheric pressure:

(i) for the cement in the zone of critical cement, the test temperature shall be within 10°F of the formation equilibrium temperature at the top of the zone of critical cement.

(ii) for the filler cement, the test temperature shall be the temperature found 100 feet below the ground surface level, or 60°F, whichever is greater.

(E) Cementing report. Upon completion of the well, a cementing report must be filed with the commission furnishing complete data concerning the cementing of surface casing in the well as specified on a form furnished by the commission. The operator of the well or his duly authorized agent having personal knowledge of the facts, and representatives or the cementing company performing the cementing job, must sign the form attesting to compliance with the cementing requirements of the commission.

(F) Centralizers. Surface casing shall be centralized at the shoe, above and below a stage collar or diverting tool, if run, and through usable-quality water zones. In nondeviated holes, pipe centralization as follows is required: a centralizer shall be placed every fourth joint from the cement shoe to the ground surface or to

the bottom of the cellar. All centralizers shall meet API spec 10D specifications. In deviated holes, the operator shall provide additional centralization.

(G) Alternative surface casing programs.

(i) An alternative method of fresh water protection may be approved upon written application to the appropriate district director. The operator shall state the reason (economics, well control, etc.) for the alternative fresh water protection method and outline the alternate program for casing and cementing through the protection depth for strata containing usable-quality water. Alternative programs for setting more than specified amounts of surface casing for well control purposes may be requested on a field or area basis. Alternative programs for setting less than specified amounts of surface casing will be authorized on an individual well basis only. The district director may approve, modify, or reject the proposed program. If the proposal is modified or rejected, the operator may request a review by the director of field operations. If the proposal is not approved administratively, the operator may request a public hearing. An operator may request a public hearing. An operator shall obtain approval by any

alternative program before commencing operations.

(ii) Any alternative casing program shall require the first string of casing set through the protection depth to be cemented in a manner that will effectively prevent the migration of any fluid to or from any stratum exposed to the wellbore outside this string of casing. The casing shall be cemented from the shoe to ground surface in a single stage, if feasible, or by a multi-stage process with the stage tool set at least 50 feet below the protection depth.

(iii) Any alternative casing program shall include pumping sufficient cement to fill the annular space from the shoe or multi-stage tool to the ground surface. If cement is not circulated to the ground surface or the bottom of the cellar, the operator shall run a temperature survey or cement bond log. The appropriate district office shall be notified prior to running the required temperature survey or bond log. After the top of cement outside the casing is determined, the operator or his representative shall contact the appropriate district director and obtain approval for the procedures to be used to perform any required additional cementing operations. Upon com-

pletion of the well, a cementing report shall be filed with the commission on the prescribed form.

(iv) Before parallel (nonconcentric) strings of pipe are cemented in a well, surface or intermediate casing must be set and cemented through the protection depth.

(3) Intermediate casing.

(A) Cementing method. Each intermediate string of casing shall be cemented from the shoe to a point at least 600 feet above the shoe. If any productive horizon is open to the wellbore above the casing shoe, the casing shall be cemented from the shoe up to a point at least 600 feet above the top of the shallowest productive horizon or to a point at least 200 feet above the shoe of the next shallower casing string that was set and cemented in the well.

(B) Alternate method. In the event the distance from the casing shoe to the top of the shallowest productive horizon make cementing, as specified above, impossible or impractical, the multi-stage process may be used to cement the casing in a manner that will effectively seal off all such possible productive horizons and prevent fluid migration to or from such strata within the wellbore.

(4) Production casing.

(A) Cementing method. The producing string of casing shall be cemented by the pump and plug method, or another method approved by the commission, with sufficient cement to fill the annular space back of the casing to the surface or to a point at least 600 feet above the shoe. If any productive horizon is open to the wellbore above the casing shoe, the casing shall be cemented in a manner that effectively seals off all such possibly productive horizons by one of the methods specified for intermediate casing in paragraph (b)(3) of this section.

(B) Isolation of associated gas zones. The position of the gas-oil contact shall be determined by coring, electric log, or testing. The producing string shall be landed and cemented below the gas-oil contact, or set completely through and perforated in the oil-saturated portion of the reservoir below the gas-oil contact.

(5) Tubing and storm choke requirements.

(A) Tubing requirements for oil wells. All flowing oil wells shall be equipped with and produced through tubing. When tubing is run inside casing in any flowing oil well, the bottom of the tubing shall be at a point not higher than 100 feet above the top of the producing interval nor more than 50 feet above the top of a line, if one is used. In a multiple zone structure, however, when an operator elects to equip a well in such a manner

that small through-the-tubing type tools may be used to perforate, complete, plug back, or recomplete without the necessity of removing the installed tubing, the bottom of the tubing may be set at a distance up to, but not exceeding 1,000 feet above the top of the perforated or open-hole interval actually open for production into the wellbore. In no case shall tubing be set at a depth of less than 70% of the distance from the surface of the ground to the top of the interval actually open to production.

(B) Storm Choke. All flowing oil, gas, and geothermal resource wells located in bays, estuaries, lakes, rivers, or streams must be equipped with a storm choke or similar safety device installed in the tubing a minimum of 100 feet below the mud line.

(c) Texas offshore casing, cementing, drilling, and completion requirements.

(1) Casing. The casing program shall include at least three strings of pipe, in addition to such drive pipe as the operator may desire, which shall be set in accordance with the following program:

(A) Conductor casing. A string of new pipe, or reconditioned pipe with substantially the same characteristics as new pipe, shall be set and cemented at a depth of not less than 300 feet TVD (true vertical depth) nor more than 800 feet TVD below the mud line. Sufficient cement shall be used to fill the annular

space back of the pipe to the mud line; however, cement may be washed out or displaced to a maximum depth of 50 feet below the mud line to facilitate pipe removal on abandonment. Casing shall be set and cemented in all cases prior to penetration of known shallow oil and gas formations, or upon encountering such formations.

(B) Surface casing. All surface casing shall be a string of new pipe with a mill test of at least 1,100 pounds per square inch (psi) or reconditioned pipe that has been tested to an equal pressure. Sufficient cement shall be used to fill the annular space behind the pipe to the mud line; however, cement may be washed out or displaced to a maximum depth of 50 feet below the mud line to facilitate pipe removal on abandonment. Surface casing shall be set and cemented in all cases prior to penetration of known shallow oil and gas formations, or upon encountering such formations. In all cases, surface casing shall be set prior to drilling below 3,500 feet TVD. Minimum depths for surface casing are as follows:

(i) Surface Casing Depth
Table.

<i>Proposed Total Vertical Depth of Well</i>	<i>Surface</i>
to 7000 feet	25% of proposed total depth of well

7000-10,000 feet	2000 feet
10,000 and below	2500 feet

(ii) Casing test. Cement shall be allowed to stand under pressure for a minimum of eight hours before drilling plug or initiating tests. Casing shall be tested by pump pressure to at least 1,000 psi. If, at the end of 30 minutes, the pressure shows a drop of 100 psi or more, the casing shall be condemned until the leak is corrected. A pressure test demonstrating a drop of less than 100 psi after 30 minutes is proof that the condition has been corrected.

(C) Production casing or oil string. The production casing or oil string shall be new or reconditioned pipe with a mill test of at least 2,000 psi that has been tested to an equal pressure and after cementing shall be tested by pump pressure to at least 1,500 psi. If, at the end of 30 minutes, the pressure shows a drop of 150 psi or more, the casing shall be condemned. After corrective operations, the casing shall again be tested in the same manner. Cementing shall be by the pump and plug method. Sufficient cement shall be used to fill the calculated annular space above the shoe to protect any prospective producing horizons and to a depth that isolates abnormal pressure from normal pressure (0.465 gradient). A float collar or other means to stop the cement plug shall be inserted in the

casing string above the shoe. Cement shall be allowed to stand under pressure for a minimum of eight hours before drilling the plug or initiating tests.

(2) Blowout preventers.

(A) Before drilling below the conductor casing, the operator shall install at least one remotely controlled blowout preventer with a mechanism for automatically diverting the drilling fluid to the mud system when the blowout preventer is activated.

(B) After setting and cementing the surface casing, a minimum of two remotely controlled hydraulic ram-type blowout preventers (one equipped with blind rams and one with pipe rams), valves, and manifolds for circulating drilling fluid shall be installed for the purpose of controlling the well at all times. The ram-type blowout preventers, valves, and manifolds shall be tested to 100% of rated working pressure, and the annular-type blowout preventer shall be tested to 1,000 psi at the time of installation. During drilling and completion operations, the ram-type blowout preventers shall be tested by closing at least once each trip, and the annular-type preventer shall be tested by closing on drill pipe once each week.

(3) Kelly cock. During drilling, the well shall be fitted with an upper kelly cock in proper working order to close in the drill string below

hose and swivel, when necessary for well control. A lower kelly safety valve shall be installed so that it can be run through the blowout preventer. When needed for well control, the operator shall maintain at all times on the rig floor safety valves to include:

(A) full-opening valve of similar design as the lower kelly safety valves; and

(B) inside blowout preventer valve with wrenches, handling tools, and necessary subs for all drilling pipe sizes in use.

(4) Mud program. The characteristics, use, and testing of drilling mud and conduct of related drilling procedures shall be designed to prevent the blowout of any well. Adequate supplies of mud of sufficient weight and other acceptable characteristics shall be maintained. Mud tests shall be made frequently. Adequate mud testing equipment shall be kept on the drilling platform at all times. The hole shall be kept full of mud at all times. When pulling drill pipe, the mud volume required to fill the hole each time shall be measured to assure that it corresponds with the displacement of pipe pulled. A derrick floor recording mud pit level indicator shall be installed and operative at all times. A careful watch for swabbing action shall be maintained when pulling out of hole. Mudgas separation equipment shall be installed and operated.

(5) Casinghead.

(A) Requirement. All wells shall be equipped with casingheads of sufficient rated working pressure, with adequate connections and valves available, to permit pumping mud-laden fluid between any two strings of casing at the surface.

(B) Casinghead test procedure. Any well showing sustained pressures on the casinghead, or leaking gas or oil between the surface casing and the oil string, shall be tested in the following manner: The well shall be killed with water or mud and pump pressure applied. Should the pressure gauge on the casinghead reflect the applied pressure, the casing shall be condemned. After corrective measures have been taken, the casing shall be tested in the same manner. This method shall be used when the origin of the pressure cannot be determined otherwise.

(6) Christmas tree. All completed wells shall be equipped with Christmas tree fittings and wellhead connections with a rated working pressure equal to, or greater than, the surface shut-in pressure of the well. The tubing shall be equipped with a master valves, but two master valves shall be used on all wells with surface pressures in excess of 5,000 psi. All wellhead connections shall be assembled and tested prior to installation by a fluid pressure equal to the test pressure of the fitting employed.

(7) Storm choke and safety valve. A storm choke or similar safety device shall be installed in the tubing of all completed flowing wells to a minimum of 100 feet below the mud line. Such

wells shall have the tubing-casing annulus sealed below the mud line. A safety valve shall be installed at the wellhead downstream of the wing valve. All oil, gas, and geothermal resource gathering lines shall have check valves at their connections to the wellhead.

(8) Pipeline shut-off valve. All gathering pipelines designed to transport oil, gas, condensate, or other oil or geothermal resource field fluids from a well or platform shall be equipped with automatically controlled shut-off valves at critical points in the pipeline system. Other safety equipment must be in full working order as a safeguard against spillage from pipeline ruptures.

(9) Training. Effective January 1, 1981, all tool pushers, drilling superintendents, and operators' representatives (when the operator is in control of the drilling) shall be required to furnish certification of satisfactory completion of a USGS-approved school on well control equipment and techniques. The certification shall be renewed every two years by attending a USGS-approved refresher course. These training requirements apply to all drilling operations on lands which underlie fresh or marine waters in Texas.

§3.39. Proration and Drilling Units--Contiguity of Acreage and Exception Thereto

(a) Proration and drilling units established for individual wells drilled or to be drilled shall consist of acreage which is contiguous.

(b) An exception to the contiguous acreage provision may be granted at the operator's request if acreage that is to be included in the proration or drilling unit is separated by a long, narrow right-of-way tract.

§3.40. Assignment of Acreage to Pooled Development and Proration Units

(a) Acreage up to the amount specified in applicable field rules may be pooled into a development or proration unit, provided that an operator must file with the commission a certified plat delineating the pooled unit, and a certificate of pooling authority wherein it is stated that the tracts are pooled by authority of an agreement between the various interest holders in the several tracts committed to the unit, with such tracts separately identified and the gross number of acres in each of said tracts shown separately, with a total gross acreage allowed not to exceed the unit size authorized by rule.

(b) If a tract to be pooled has an outstanding interest for which pooling authority does not exist, the tract may be assigned to a unit where authority exists in the remaining undivided interest, provided, that total gross acreage in the tract is included for allocation purposes, and the certificate filed with the commission shows that a certain undivided interest is outstanding in the tract. The commission will not allow an operator to assign only his undivided interest out of a basic tract, where a nonpooled interest exists.

(c) The nonpooled undivided interest holder retains his development rights in his basic tract, and

should such rights be exercised, authority to develop the basic tract be approved by the commission, and a well completed as a producer thereon, then the entire interest in the basic tract must be allocated to said well, and any interest insofar as it is pooled with another tract for allocation purposes. Splitting of undivided interest in a basic tract, between two or more wells on two or more tracts is not acceptable.

(d) Acreage assigned to a well for drilling and development, or for allocation of allowable, shall not be assigned to any other well or wells projected to or completed in the same reservoir; such duplicate assignment of acreage is not acceptable, provided, however, that this limitation shall not prevent the reformation of development or proration units so long as no duplicate assignment of acreage occurs, and further, that such reformation does not violate other conservation regulations.

§3.69. Definitions

The following words and terms, when used in this chapter, shall have the following meanings, unless the context clearly indicates otherwise:

Adjacent estuarine zones--This term embraces the area inland from the coast line of Texas and is comprised of the bays, inlets, and estuaries along the gulf coast.

By-product--Any element found in a geothermal formation which when brought to the surface is not used in geothermal heat or pressure inducing energy generation.

Casinghead gas--Any gas or vapor, or both, indigenous to an oil stratum and produced from such stratum with oil.

Commission--The Railroad Commission of Texas.

Common reservoir--Any oil, gas, or geothermal resources field or part thereof which comprises and includes any area which is underlaid, or which from geological or other scientific data or experiments or from drilling operations or other evidence appears to be underlaid by a common pool or accumulation of oil, gas, or geothermal resources.

Cubic foot of gas or standard cubic foot of gas--The volume of gas contained in one cubic foot of space at a standard pressure base and at a standard temperature base. The standard pressure base shall be 14.65 pounds per square inch absolute, and the standard temperature base shall be 60°F. Whenever the conditions of pressure and temperature differ from the standard in this definition, conversion of the volume from these conditions to the standard conditions shall be made in accordance with the ideal gas laws, corrected for deviation,

District office--The commission-designated office for the geographic area in which the property or act subject to regulation is located or arises.

Dry gas--Any natural gas produced from a stratum that does not produce crude petroleum oil.

Exploratory well--Any well drilled to a depth greater than the existing fresh water strata, as determined by the Texas Department of Water Resources, for the purpose of securing geological or other information which may be obtained by

penetrating the earth with a drill bit, coring equipment, and similar tools, and includes what is commonly referred to in the industry as "slim hole tests" or "core hole tests" and the like.

Gas lift--Gas lift by the use of gas not in solution with oil produced.

Gas well--Any well:

(A) which produces natural gas not associated or blended with crude petroleum oil at the time of production;

(B) which produces more than 100,000 cubic feet of natural gas to each barrel of crude petroleum oil from the same producing horizon; or

(C) which produces natural gas from formation or producing horizon productive of gas only encountered in a well bore through which crude petroleum oil also is produced through the inside of another string of casing or tubing. A well which produces hydrocarbon liquids, a part of which is formed by a condensation from a gas phase and a part of which is crude petroleum oil, shall be classified as a gas well unless there is produced one barrel or more of crude petroleum oil, shall be classified as a gas well unless there is produced one barrel or more of crude petroleum oil per 100,000 cubic feet of natural gas; and that the term "crude petroleum oil" shall not be construed to mean any liquid hydrocarbon mixture or portion thereof which is not in the liquid phase in the reservoir, removed from the reservoir in such liquid phase, and obtained at the surface as such.

Gatherer--Includes any pipeline, truck, motor vehicle, boat, barge, or person authorized to gather or accept oil, gas, or geothermal resources from lease production or lease storage.

Geothermal energy and associated resources--

(A) All products of geothermal processes, embracing indigenous steam, hot water and hot brines, and geopressured water.

(B) Steam and other gases, hot water and hot brines resulting from water, gas, or other fluids artificially introduced into geothermal formations.

(C) Heat or other associated energy found in geothermal formations.

(D) Any by-product derived from them.

Geothermal resource well--A well drilled within the established limits of a designated geothermal field.

(A) A geopressured geothermal well must be completed within a geopressured aquifer.

(B) A geopressured aquifer is a water-bearing zone with a pressure gradient in excess of 0.5 pounds per square inch per foot and a temperature gradient in excess of 1.6°F. per 100 foot of depth.

Marginal well--Any oil well which is incapable of producing its maximum capacity of oil except by pumping, gas lift, or other means of artificial lift, and which well so equipped is capable, under normal

unrestricted operating conditions, of producing such daily quantities of oil as herein set out, as would be damaged, or result in a loss of production ultimately recoverable, or cause the premature abandonment of same, if its maximum daily production were artificially curtailed. The following described wells shall be deemed "marginal wells" in this state:

(A) Any oil well incapable of producing its maximum daily capacity of oil except by pumping, gas lift, or other means of artificial lift, within this state and having a maximum daily capacity for production of 10 barrels or less, averaged over the preceding 10 consecutive days of stabilized production, producing from a depth of 2,000 feet or less.

(B) Any oil well incapable of producing its maximum daily capacity of oil except by pumping, gas lift, or other means of artificial lift, within this state and having a maximum daily capacity for production of 20 barrels or less, averaged over the preceding 10 consecutive days of stabilized production, producing from a horizon deeper than 2,000 feet and less in depth than 4,000 feet.

(C) Any oil wells incapable of producing its maximum daily capacity of oil except by pumping, gas lift, or other means of artificial lift, within this state and having a maximum capacity of 25 barrels or less, averaged over the preceding 10 consecutive days of stabilized production, producing from a horizon deeper than 4,000 feet and less in depth than 6,000 feet.

(D) Any oil well incapable of producing its maximum daily capacity of oil except by

pumping, gas lift, or other means of artificial lift, within this state and having a maximum daily capacity for production of 30 barrels or less, averaged over the preceding 30 consecutive days, producing from a horizon deeper than 6,000 feet and less in depth than 8,000 feet.

(E) Any oil well incapable of producing its maximum daily capacity of oil except by pumping, gas lift, or other means of artificial lift, within this state and having a maximum daily capacity for production of 35 barrels or less, averaged over the preceding 10 consecutive days of stabilized production, producing, from a horizon deeper than 8,000 feet. (Reference Order No. 20-59,200, Effective 5-1-69).

Natural gas or gas--These terms shall have the same meaning, as used in the rules, regulations, or forms of the commission.

Natural gasoline--Gasoline manufactured from casinghead gas or from any natural gas.

Oil well--Any well which produces one barrel or more crude petroleum oil to each 100,000 cubic feet of natural gas.

Operator--A person, acting for himself or as an agent for others and designated to the commission as the one who has the primary responsibility for complying with its rules and regulations in any and all acts subject to the jurisdiction of the commission.

Person--Any natural person, corporation, association, partnership, receiver, trustee, guardian, executor, administrator, and a fiduciary or representative of any kind.

Product--Includes refined crude oil, crude tops, topped crude, processed crude petroleum, residue from crude petroleum, cracking stock, uncracked fuel oil, fuel oil, treated crude oil, residuum, casinghead gasoline, natural gas gasoline, gas oil, naphtha, distillate, gasoline, kerosene, benzine, wash oil, waste oil, blended gasoline, lubricating oil, blends or mixtures of petroleum and/or any and all liquid products or byproducts derived from crude petroleum oil or gas, whether hereinabove enumerated or not.

Sour gas--Any natural gas containing more than 1-1/2 grains of hydrogen sulphide per 100 cubic feet or more than 30 grains of total sulphur per 100 cubic feet, or gas which in its natural state is found by the commission to be unfit for use in generating light or fuel for domestic purposes.

Sweet gas--All natural gas except sour gas and casinghead gas.

Texas offshore--This term embraces the area in the Gulf of Mexico seaward of the coast line of Texas comprised of:

(A) the three league area confirmed to the State of Texas by the Submerged Land Act (43 United States Code section 1301-1315); and

(B) the area seaward of such three league area owned by the United States.

Transportation or to transport--The movement of any crude petroleum oil or products of crude petroleum oil or the products of either from any receptacle in which any such crude petroleum or products of crude petroleum oil or the products of either has been stored

to any other receptacle by any means or method whatsoever, including the movement by any pipeline, railway, truck, motor vehicle, barge, boat, or railway tank car. It is the purpose of this definition to include the movement or transportation of crude petroleum oil and products of crude petroleum oil and the products of either by any means whatsoever from any receptacle containing the same to any other receptacle anywhere within or from the State of Texas, regardless of whether or not possession or control or ownership change.

Transporter or transporting agency--Includes any common carrier by pipeline, railway, truck, motor vehicle, boat, or barge, and/or any person transporting oil or a product by pipeline, railway, truck, motor vehicle, boat, or barge.

